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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,166	01/17/2002	Don Warburton	14374.85	3183

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WORKMAN NYDEGGER & SEELEY
1000 EAGLE GATE TOWER
60 EAST SOUTH TEMPLE
SALT LAKE CITY, UT 84111

EXAMINER

SONG, HOON K

ART UNIT PAPER NUMBER

2882

DATE MAILED: 06/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/052,166

Applicant(s)

WARBURTON, DON

Examiner

Hoon Song

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6 and 18-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Chornenky et al. (US 6289079B1).

Regarding claims 1 and 18, Chornenky teaches an x-ray tube (figure 1), comprising:

a vacuum enclosure in which is disposed an electron producing cathode (145) and a stationary anode (115), the stationary anode being positioned to receive at least some of the electrons emitted by the cathode, wherein the stationary anode comprises:

a substrate (155) having first and second ends; and

a target cap (130) having top and side walls that together define a cavity that at least partially receives the first end of the anode substrate and in a manner such that the side walls extend in a direction towards the second end of the anode substrate, and wherein the target cap defines a target surface comprised of an x-ray producing material at a point such that at least some of the electrons emitted by the cathode

impinge the target surface to produce primary x-rays having one or more characteristic wavelengths (figure 1).

Regarding claim 2, Chornenky teaches that at least a portion of the target cap comprises a material selected from the group consisting of rhodium, palladium, molybdenum, titanium, and tungsten or alloys thereof (well-known, column 5 line 15+).

Regarding claim 3, Chornenky teaches that the cavity is cylindrically shaped (figure 1).

Regarding claims 4 and 19, Chornenky teaches that the cavity receives the first end of the substrate so as to form a substantially contiguous fit therebetween (figure 1).

Regarding claim 5, Chornenky teaches that the side wall is comprised of a material such that x-rays emitted therefrom have secondary wavelengths that do not interfere with the primary x-rays produced by the target surface (figure 1).

Regarding claim 6, Chornenky teaches that the secondary x-rays have characteristic wavelengths that are substantially identical to the characteristic wavelengths of the primary x-rays produced at the target surface (figure 1, because it has identical target structure).

Regarding claim 20, Chornenky teaches that further comprising the step of: cleaning the target cap prior to disposing an end of the substrate portion of the stationary anode within the cavity of the target cap so as to prevent contamination of the x-ray tube (column 6 line 4+).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chornenky in view of Miller (US 6393099B1).

Regarding claims 7-9 and 13-14, Chornenky merely teaches that the target surface has a substantially planar shape.

Miller teaches the target surface having a substantially planar shape (figure 2)

In view of Miller, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to design the planar surface target in order to receive electrons to produce X-rays. Accordingly, one would be motivated to adopt the planar target surface because it would reduce secondary impact electrons than round shape target (figure 2, column 2 line 65+).

Regarding claims 10-12, Chornenky fails to teach the range of thickness.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the thickness, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In this case one would be motivated to change the thickness in order to use in a bigger system rather than miniature structure.

Regarding claim 15, Chornenky teaches that the outer periphery of the top wall is circular (figure 1).

Regarding claim 16, Chornenky teaches that the outer surface of the side wall is cylindrically shaped (figure 1).

Regarding claim 17, Chornenky teaches that the stationary anode substrate comprises copper or a copper alloy (well known).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoon Song whose telephone number is 703-308-2736. The examiner can normally be reached on 8:30 AM - 5 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 703-305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-4858 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Hoon Song
June 3, 2003



DAVID V. BRUCE
PRIMARY EXAMINER